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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,715	12/18/2001	Masahiro Kodama	P/1071-1513	2113

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EXAMINER

EASTHOM, KARL D

ART UNIT PAPER NUMBER

2832

DATE MAILED: 09/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/022,715

Applicant(s)

KODAMA ET AL.

Examiner

Karl D Easthom

Art Unit

2832

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niimi et al. in view of Furukawa et al. and Ogose et al. Niimi discloses the claimed invention at Fig. 1 and par. 21 except the glass covering. Furukawa discloses a glass diffused covering 13 for thermistors in general at Fig. 3. Furukawa discloses that such a covering is needed to protect the chip at col. 1, lines 5-25. Ogose discloses employing a glass coating for a barium titanate capacitor at pars. 1-7 to fill up the pores and to thus prevent humidity from entering and to prevent degradation. It would have been obvious in view of Furukawa and Ogose to employ a glass covering in the device of Niimi et al. in order to prevent the device from deteriorating as suggested, where Niimi discloses having a porous article.<sup>1</sup>

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<sup>1</sup>It is well known that barium titanate capacitors and resistors or semiconductors differ only in that the barium site of the former is doped to obtain the latter, suggesting the compatibility of the two types of electronic devices. For evidence of this - see col. 1, lines 23-31 of Sasaki et al, or see Purdes et al. at col. 1. Further, it is well known that pores are filled in

4. For claim 1, Niimi discloses the relative density at the abstract. For claims 3, 6, 11, 16, and 17, the melting point of 650 degrees is at par. 21. of Ogose, useful in order to raise the moisture resistance at par. 11. The stack of claims 4, 9 and 14 is at Fig. 1. The covering/impregnation of claims 1-2, 5, 8, 10, 12-13 and 15 is provided by the secondary art as noted above. For claims 7, and 12, claim 1 of Niimi claims no sintering agent, so that the intent of the inventor is not to require a sintering agent, so that lack of a sintering agent is disclosed.

5. Claims 1-6 and 8-11 are rejected under 35 U.S.C. 102(b) as anticipated by Ogose (JP411340090) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ogose (JP411340090) in view of Quirk. Ogose discloses the claimed invention at Figs. 4-5. At par. 7 of the English translation, low sintering and high porosity is disclosed. This inherently meets the claim of "about 90" percent or less since the lowest porosity would mean an ideal "100 percent" relative density article. Evidence that the claim is met is that Quirk discloses at col. 3, lines 35-45 that relative density at more than about 93 percent of theoretical density would render the pores too small to be impregnated. Further evidence is that Niimi at par. 13 discloses that relative density is calculated relative to a perfect crystal, which is not the case for Ogose. Thus the density must be low because there is high porosity. Also, low sintering, as disclosed by applicant, reduces the density. That is, the diffused glass layer at the abstract also discloses many pores are filled with glass, meeting the relative density of "about" where the term is one of degree, since no pores would be filled if the relative density were above 93 percent as noted by Quirk. For claims 2, 4 and 6 the glass melts at 650 degrees at par. 21, thus the glass softens at 

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 order to coat resistors, see Bockstie, Jr. at col. 1, lines 40-50, and that a certain porosity must be present, which means that the density must be low enough, in order to fill the pores, see Quirk at col. 3, lines 35-45. Added motivation is here supplied from the prior art of record.

less. For claims 4, 9, and 14, the multilayer stack is disclosed at the abstract fig. For claims 5, 8, 10, 13 and 15, the outer layer is disclosed at the abstract as protecting the component. Barium titanate is disclosed at par. 15. for claim 12. As an alternative, where the porosity is not

inherent, Quirk discloses at col. 3, lines 35-45 that relative density at more than about 93 percent of theoretical density would render the pores too small to be impregnated, so that it would have been obvious to employ that density to obtain good impregnation, where Quirk and Ogoose are both concerned with impregnating electrical components with dielectrics for protection thereof.

6. Claims 1-2, 4-5, 7-10, and 12-15 are rejected under 35 U.S.C. 102(b) as anticipated by Kumada et al. or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kumada in view of Niimi et al. Kumada discloses the claimed invention at Fig. 1 with glass layer 25 on a surface, and electrodes 24, 21, 22, with barium titanate at col. 6. The glass layers 25 are impregnated where they are fired under pressure and temperature at col. 6, lines 48-60. That is, inherently the glass is impregnated since there is pressure and temperature, according to applicant's specification, and bonding would not occur where there is no diffusion. Adhesion requires an amount of diffusion. The term about 90% is met since there is no disclosure of the barium titanate being a perfect crystal, and Niimi discloses same is required as noted above. As an alternative, it would have obvious in view of Niimi to employ that density for the purpose of forming a PTC device having excellent characteristics as disclosed at par. 20 thereof, said density allowing glass to impregnate. For claims 7, 12, no sintering agent is disclosed in Kumada. Alternatively, it would have been obvious in view of Niimi not to employ it where the amount is minimal -.001 at par. 26, and Niimi claim 1 does not require it, suggesting it is not required.

7. Applicant's arguments filed 7/1/03 have been fully considered but they are persuasive only in part, or moot. Applicant argues that relative density is relative to the density of water.

There is no basis for this definition anywhere as it relates to ceramics, which is evidenced by Niimi at par. 13. Hence Quirk relates to relative density contrary to what is argued. Moreover, since Ogose discloses no pure crystal, Ogose discloses "about" 90% where the term is broad and there is diffusion. The 112 rejection is removed since it is assumed that one of skill would realize that there is porosity sufficient for diffusion to occur, so that "about 90%" is defined as related to diffusion of glass into the layers, according to the evidence above in Quirk.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl Easthom whose telephone number is (703)308-3306. The examiner can normally be reached on M-Th. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad, can be reached on (703)308-7619. The fax phone number for the organization where this application or proceeding is assigned is (703)308-7722. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

  
KARL D. EASTHOM  
PRIMARY EXAMINER